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Determination of stress intensity factor of actuated cracked aluminum plate using strain gages (Article)

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Abstract

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The rapid development of smart and intelligent structure has led to the application of piezoelectric patches in repairing techniques. The advantage of using piezoelectric patch is that its behavior can be controlled by considering its electromechanical properties. The piezoelectric patch that can be used for sensing and actuation make it suitable to be used in active repair. In this paper, an experimental approach of active repair on an edge crack specimen using two piezoelectric patches was carried out. To observe the effect of the active repair, the stress intensity factor (SIF) was measured using strain data that was obtained from the strain gages located near to the crack tip. The edge crack specimen was put under Mode 1 loading condition as the active repair using piezoelectric patches was applied. The results showed reduction of SIF from the effect of the active repair. © BEIESP.

Author keywords

Active repair Edge crack Modes Piezoelectric

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